Federal Communications Commission
Andrew Wireless Location Systems

E911 Phase II
Wireless Caller Location
July 27, 2010

Global Infrastructure Solutions Leader

A Global Leader

- $3 billion sales
- 11,500+ employees
- 3,100+ patents/patent applications worldwide
- Fortune 1000

#1 at home	#1 at work	#1 on the go
Optical and RF solutions for broadband networks	Physical layer infrastructure and in-building wireless solutions for enterprise networks	Radio frequency solutions for wireless networks

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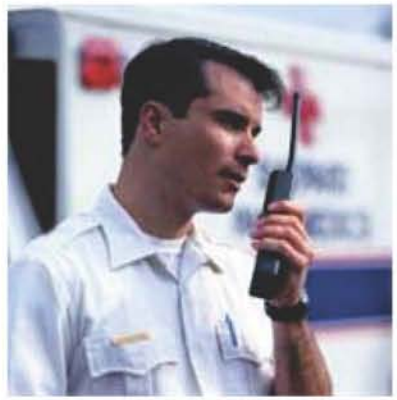
Andrew Solutions

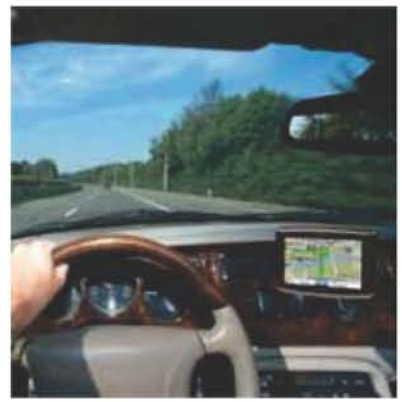
Andrew, a CommScope Company, is the foremost supplier of one-stop, end-to-end radio frequency (RF) solutions. Our Antenna, Cable, and Cabinet Group and Wireless Network Solutions Group combine to design, manufacture and deliver complete solutions for wireless infrastructure—from top-of-the-tower base station antennas to cable systems and cabinets, RF site solutions, signal distribution, wireless caller location, and network optimization.

High-Performance Location Systems Since 2001

Public Safety
Caller Location

E911, European 112,
Police, Fire Brigade, Ambulance.



Commercial Location-Based Services Support

Enterprise

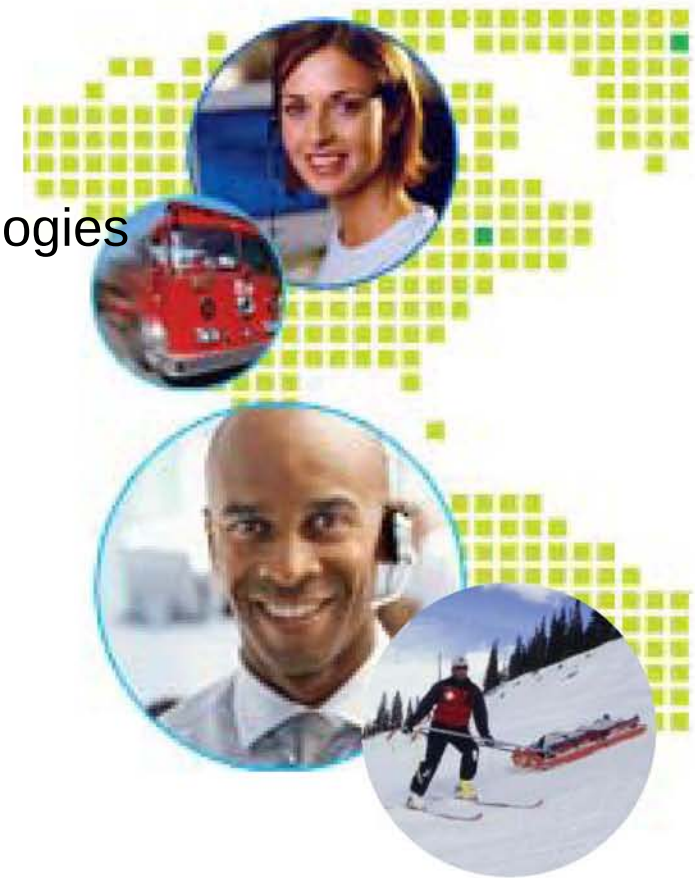
Asset Management, Productivity Enhancement, Fleet Management, Service Dispatch

Consumer

Family Locator, Navigation, Social Applications, Travel Assist, Medical Assist, Personal Security, Games

Unparalleled Experience and Expertise

- First E911 Phase II Compliant System In Service - 2001
- Comprehensive Deployment for E911 Support:
  - 3 of the 4 National U.S. Carriers
  - Multiple Tier II and III U.S. Carriers
  - Caribbean
  - Multiple Canadian Carriers
- All Viable Real-Time Wireless Location Technologies
  - “Network-Based” and “Handset-Based”
  - “Control Plane”, “User Plane”, and “Dual-Plane”
  - Support for 2G, 3G, 4G, NG911
- Forward-Looking Location Technology
  - LTE and WiMAX Location
  - In-Building Location
  - IP-Based Network Location (NENA-ECRIT i2/i3)



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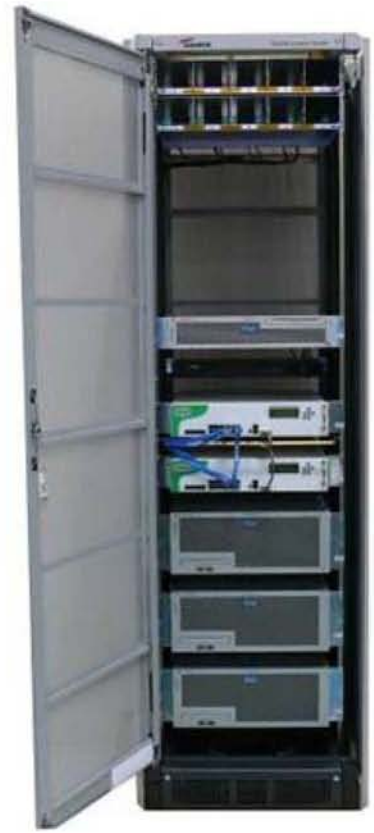
Single Platform for Any Application

Andrew's 4th Generation Location System

- Can Simultaneously Serve 2G, 3G, and 4G Networks
- High-Availability/Built-In Redundancy
- High Capacity – 100s of Locations per Second
- Supports Control Plane, User Plane, and "Dual-Plane"
- Consolidates All Combinations of Location Node Types
  - GMLC, SMLC(2G), SAS(3G), E-SMLC(LTE), SUPL
- Can "Tandem" Operate with Other Systems, e.g. other PDE
- Extensively Deployed and Proven
- Standards-Compliant for Multi-Vendor Network Compatibility
- Can Support E911 and Commercial Applications
  - E911 Always Has Precedence
- Can Simultaneously Support Multiple Networks



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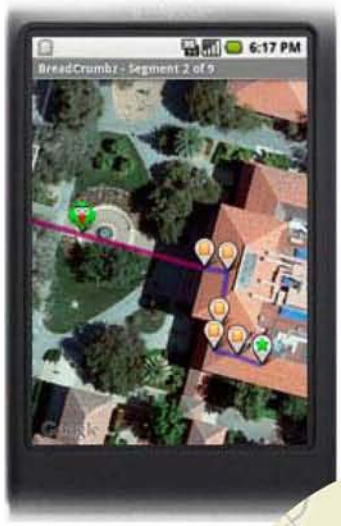
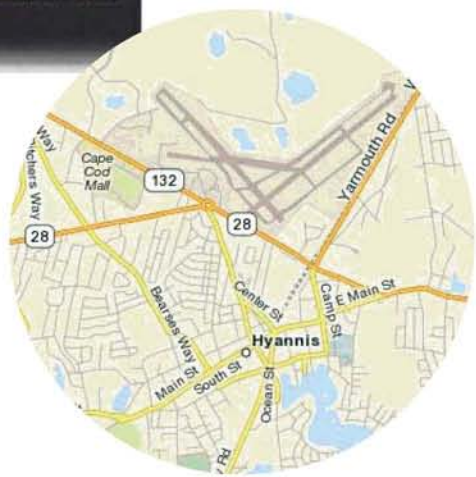
E911 Phase II Wireless Location Technologies

Current Wireless E911 Phase II Location Methods Deployed in the U.S.
- “Network-Based” and “Handset-Based”





- Assisted-GPS (A-GPS)
- Enhanced Cell ID (timing-based, including RTT, TA/NMR AFLT)
- LMU-based (U-TDOA, AOA)
- Cell ID
- Hybrids (A-GPS/RTT, A-GPS/AFLT, etc.)
- RF Profiling
- All Current Methods Use “Control Plane”

Wireless Location Facts

- No Single Location Method Is Suited to All Environments
  - Andrew Systems Provide Multiple Location Technologies
- Location Accuracy Receives Most Attention, but Yield/Reliability Is Equally Important
- Hybrid and Backup Technologies Can Improve Overall Performance - Increase Yield with Objective Accuracy
- 4G Networks Permit Additional Enhancement of Location Methods
- A-GPS Reliability Decreases In Buildings & Dense Urban
- In-Building Augmentation Requires Coordination with Primary Systems
- Some Methods Acceptable for Commercial LBS May Not Be Suitable for Emergency Services

Evolution and Related Considerations

Increased Indoor/In-Structure Calling

- GPS Indoor Performance Degradation. Requires Methods to Supplement GPS.

Picocells, Femtocells

- Ownership/Operation. Broadband backhaul. Operator/ISP Location.

Fixed, Transportable/Mobile VoIP

- Manual Database or Dynamic Location. Separation of Access and Service Providers. “Wireless” vs. “Wireline”.

LTE and WiMAX

- Leverage Operational Characteristics to Benefit Caller Location

IP-Based Location Architecture/Methods

- Addresses Reality of IP-Based Networks.
- IETF Standards/NENA i2/i3 Model Architecture
- New Elements for IP-based Location

Andrew Wireless Location Systems

- Key Wireless Location Systems Provider for E911 and Commercial LBS
- Address All Performance Dimensions
  - Accuracy, Yield, Latency, Availability
- All Viable Wireless Location Methods
  - Primary/Hybrid/Backup
  - Control Plane/User Plane/Dual-Plane
  - “Handset-based”, “Network-based”
- 2G, 3G, and 4G Wireless Network Support
- U.S. and International Carrier Customer Base
- Solutions for In-Structure Location
- Solutions for IP-Based Location - Network & Enterprise

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Thank you!

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